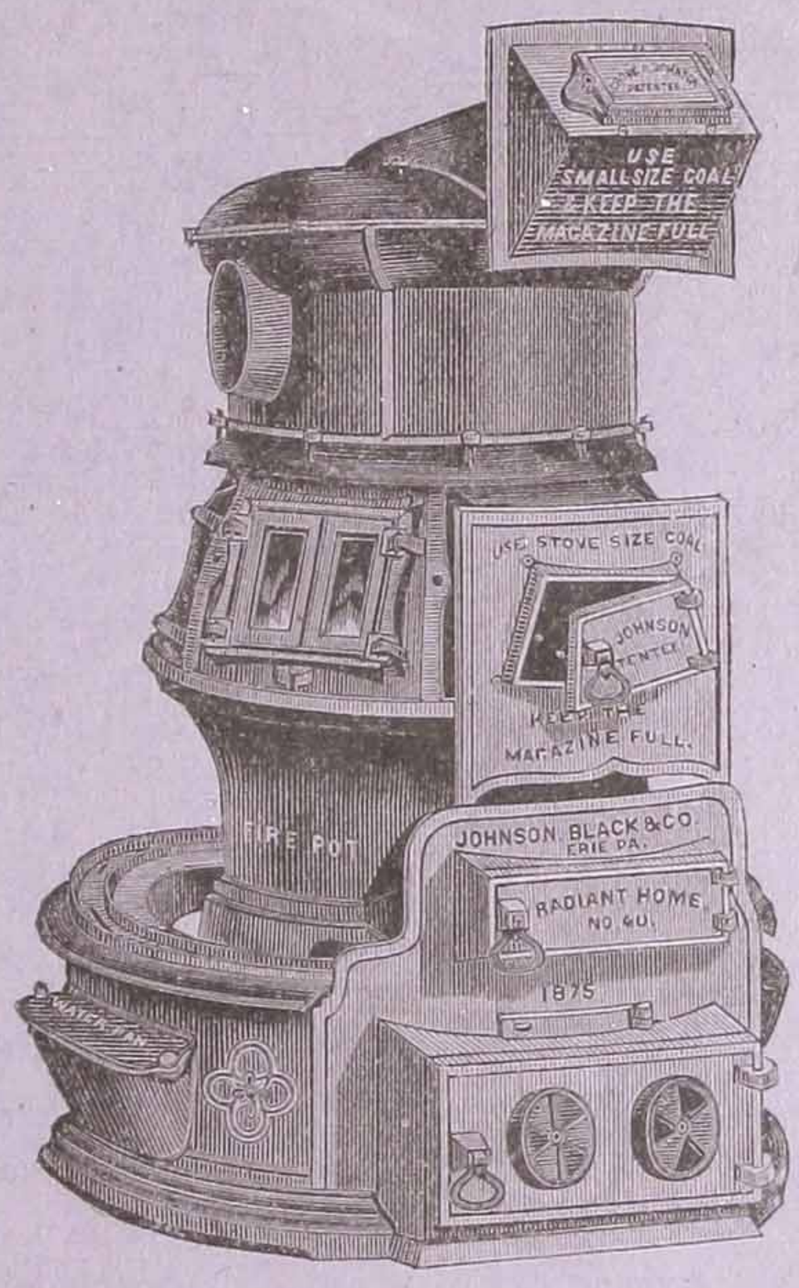
Library of The
Saturday
Afternoon Club

heating

"RADIANT HOME"

BASE BURNING

1876. 1876.



FURNACES.

SOLD BY

1B 3928

"RADIANT HOME"

BASE BURNING

FURNACES.

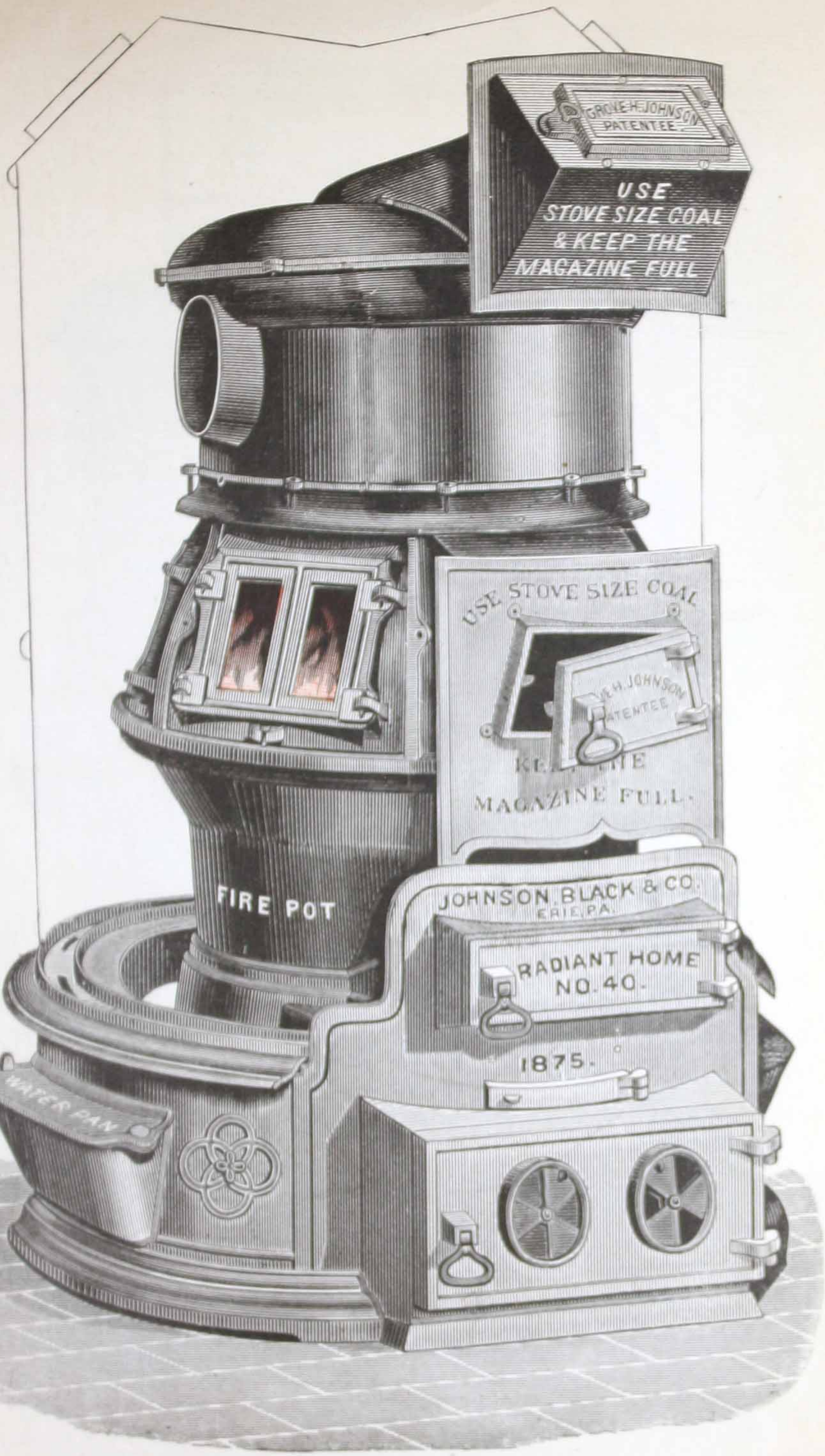
1876.

MANUFACTURED BY

JOHNSON, BLACK & CO.,

ERIE, PENN.

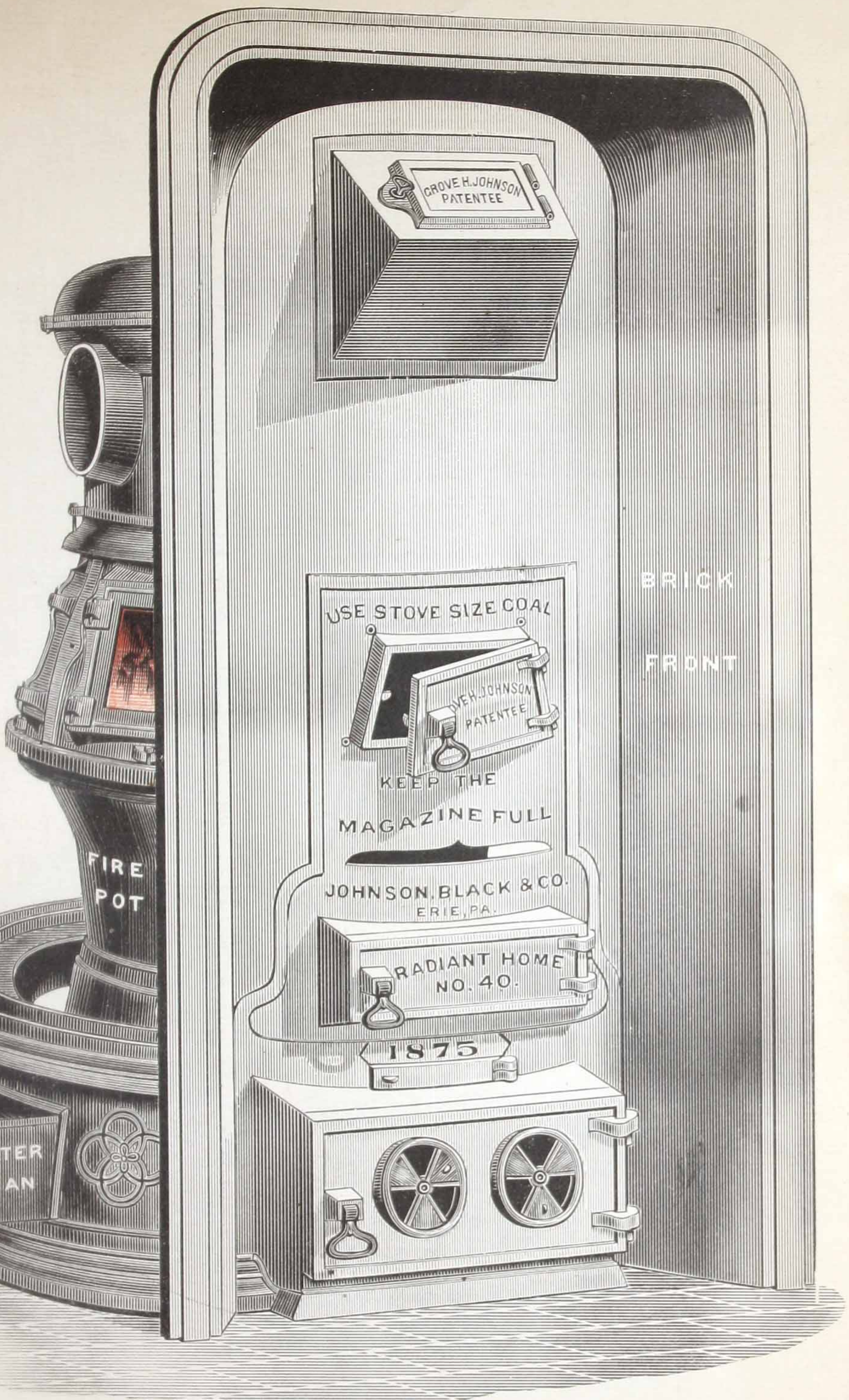
BUFFALO, N. Y.
PRINTING HOUSE OF MATTHEWS & WARREN.
Office of the "Buffalo Commercial Advertiser."
1876.



PORTABLE BASE BURNING FURNACE.

THREE SIZES.—Nos. 36, 40 and 46.

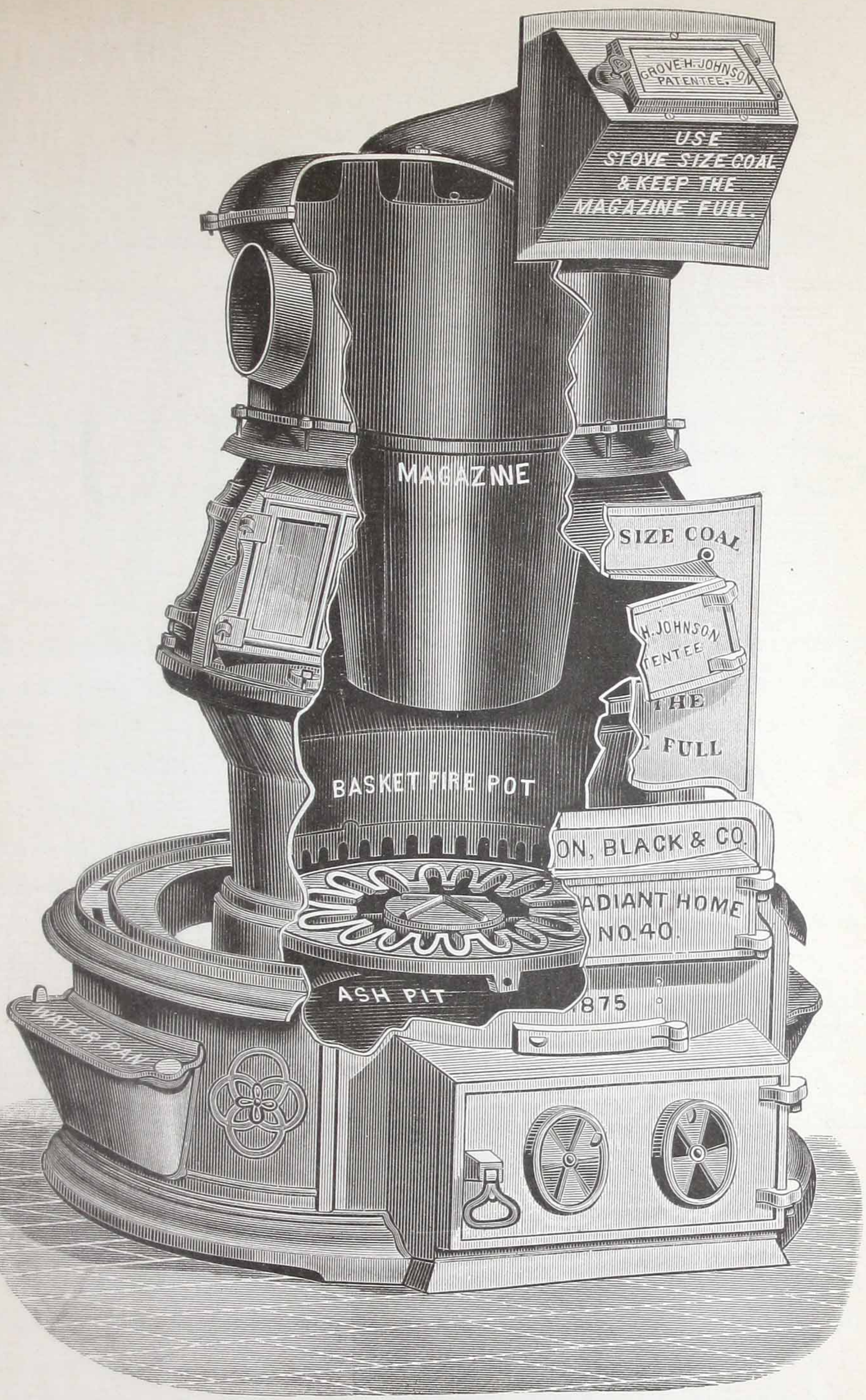
MADE WITH OR WITHOUT MICA.



BRICK BASE BURNING FURNACE.

THREE SIZES.—Nos. 36, 40 and 46.

MADE WITH OR WITHOUT MICA.



PORTABLE BASE BURNING FURNACE.

BROKEN VIEW.

RADIANT HOME

BASE BURNING

FURNACES.

We have manufactured Base-Burning Stoves and Furnaces almost exclusively for the past ten years. Our newest and latest stove is the Radiant Home. While we are among the oldest manufacturers of this class of stoves, we have ever aimed to be among the foremost in keeping our goods up to and abreast of the times.

In so doing we have parted with many of our cherished ideas. Our stove of to-day bears but little resemblance to its brother of ten years ago. While the stove of ten years since was an ingenious work of art, with its complicated magazine and magazine cover, its contracted flues, its liability to puff, its small fire pot, its meagre supply of mica, its dust dealing and disseminating proclivities, the stove of to-day is its reverse in almost every particular. It is much finer in appearance, consuming no more fuel; it is a more powerful heater, has a larger and modern Basket Fire Pot, a magazine which is a model of simplicity, the flues are large—giving a free unobstructed draft, and last, but not least, it contains about *three times as much mica.*

The stove of to-day compared with those of ten years since, or even those of five years ago, is a long step forward. More simple in construction, more durable and better in every way. Our Radiant Home Furnace is only an enlarged Radiant Home Stove, plain and simple. It has the Mill or Morning Glory Grate, a Basket Fire Pot, Illumination Case, Open Top Magazine, an opening in front so that clinker and debris may be pushed

through the grate. *The Illuminated Case is not intended for illumin* tio *but for the more rapid radiation of heat, it being well known that hea* an *light will pass through mica much faster than it will through cast or wr* ugh *iron.* The Radiant Home Furnace stands second to none, and bei g i fact only an enlarged Radiant Home stove, all that can be said commer lin the stove will apply with equal force to the furnace. *To sum up, it is* wel *made, well mounted, easily controlled, a powerful heater, a moderate cons* me *of fuel, free from escaping dust, ashes or gas, and very durable.* E ery Furnace is warranted.

These furnaces can be set as stationary in brick work, or as portab in galvanized iron casings. The No. 36 requires a space of 40 inche in diameter upon which to stand. No. 40 requires 44 inches and No 46, 51 inches.

Setting up Furnace.

FIRST.—See that the Mica is good, carefully fitted and put in positior

SECOND.—Fill the groove in the *Mica Frame full with Cement*, t en fasten the Mica Frame to the body of the Furnace, using the nails to fas n, *making all air tight.*

Examine carefully and see that all *Bolts and Nuts* are *made tight* a d *well fastened.*

Place Cement in the top of the grated Fire Pot Ring, and around a d on top of the poke hole frame.

Then put Fire Pot in position, pressing it down into the Cement.

Fill the groove in the top of the Fire Pot with Cement, then bolt t e illuminated section to the Fire Pot.

Follow instructions carefully.

Size of Furnace.

It is true economy to buy a *larger sized furnace* than will *just do* th work required of it. The additional first cost is more than balanced in th saving of coal, in comfort and health, and in the increased durability of th furnace when not overheated.

Location of Furnace.

In locating the Furnace see that you have a good foundation, and great care should be taken to place it so that the hot air pipes leading to the registers may be as nearly as possible of *an equal length and pitch*, and having the upper sides of all the pipes on the *same level* where they connect with the furnace. *Never* run your hot air pipes or *any part* of them *on a horizontal line*, but dig down and lower the furnace, so that a regular upward inclination of the pipes may be preserved from the furnace to the register, always remembering that the nearer the pipes are to a perpendicular position, the more rapid will be the flow of heat, and the building warmed with *less fuel*.

Heating Churches and Schools.

In heating churches draw the cold air from the audience room to the room in which the furnaces are placed, by means of a register in the floor. In this way a room can be heated in much less time than is required when the air is drawn to the furnace from without. For every foot of heated air the furnace sends into the room, a foot of cold air rushes from the room to the furnace to supply its place, and is, in its turn, sent up again heated.

Arrangements should also be made for a large ventilator, opening into the smoke flue, near the floor of the audience room, which should be opened when the room is occupied, and the air should then be taken from the outside to supply the furnace and the register to conduct the air from the audience room to the furnace closed. Or, better yet, in building your chimney, build an extra flue on each side to be used as ventilating draft flues; these can be used at all times for ventilating, and will not interfere with the draft in your chimney. Fires should be lighted in furnaces, used in churches, twenty-four hours before the audience room is to be occupied, thus securing warmth and comfort in all parts of it. With the "Radiant Home" Furnaces, this involves but little trouble. Fill the magazine *to the top*, at night, and this supply will keep the furnace running until morning.

School-houses should be supplied with furnaces of greater heating capacity than any other buildings, because: 1st. There are a greater number of sets

of lungs, in proportion to the space occupied, inhaling and rendering the air impure, thereby creating a necessity for more frequent and rapid change of air in the room. 2d. The portion of the room occupied by the students, when seated, is near the floor, which is ordinarily the coldest place in the room. 3d. Scholars cannot, at their own pleasure, change their positions to seek a more comfortable temperature or accelerate the circulation of their blood by physical exercise. The remarks in relation to ventilation apply with greatly increased force to the case of school-houses; and school as well as church committees will find that small-sized furnaces put in to save expense in the first cost, will not be truly economical.

Size of Hot Air Pipes and Registers.

No absolute rule, applicable in all cases, can be given; there is one, however, that it is safe to follow, and that is to *make them large, and have as few curves as possible, and avoid short curves and angles.* Those leading to the lower story should always be larger than those leading to the second and third stories. An eight-inch pipe leading to the upper stories will conduct as much heat as one of twelve inches leading to the first floor, if both have the same inclination and length to the register or upward curve of the pipe. All pipes leading to upper stories should have dampers in them near the furnace, to be closed when these pipes are not in use.

For an 8 inch pipe use 8 × 12 or 12 inch round register.
" a 9 " " " 9 × 12 or 12 " " "
" a 10 " " " 9 × 14 or 14 " " "
" a 12 " " " 12 × 15 or 16 " " "

And in the same proportion for larger sizes.

The foregoing are general directions, but the conditions under which furnaces are set, and the surroundings are so varied, that much must be left to the judgment of the mechanic, who directs the job in particular cases.

Size of Coal.

For No's 36 and 40 Base Burners use *Stove Size Coal*; for No. 46 Base Burner, use Small Egg.

For either size of the Surface Burners use Small Egg.

SPECIAL.—*For the Base Burners use the size of coal indicated on the front of the furnace and no other size.*

Keep the Magazine Full.

In starting fires, it is best first to put one or two hods of coarse coal on the grate. Then with shavings on top of the coal, after the fire has started to burn, supply one or two hods of charcoal. After charcoal is well lighted, fill Magazine with coal. Then close draft registers in front, open one of the cold air checks in smoke pipe. In this way you will not over heat your house with your first fire. If charcoal is not conveniently at hand, use hard wood kindlings, but not too many.

To Clean the Grate.

In moderate weather shake the grate twice a day. Cease shaking immediately on or before the appearance of live coals or hot ashes dropping through. Or, if preferred, you can clean the grate with poker, cleaning one side of the grate in the morning and the other at night. If you clean with poker as above, push it through the open clinker door through one side of the grate between the solid centre and rim of the grate, pushing off and through the grate into the ash chest all ashes and clinker, and at night the other side, taking care not to break the cone which rests on the solid centre of the grate. In cold weather shake the grate morning and evening of each day, or use poker if preferred.

To Regulate.

In moderate weather, after cleaning the grate, open one of the draft registers in ash pit door a very little and open the check drafts in smoke pipe, one or both, as may be necessary; but always leave one of the check drafts partly open.

In cold weather it may be necessary to open the draft register in the morning for say 15 to 30 minutes, then clean the grate, fill the magazine and regu-

late for the day, giving more or less draft as may be required, opening or closing draft register in ash pit door for that purpose. Open the check draft sufficient, so that you can at all times lay your hand on smoke pipe without burning. By so doing you create a fullness in the furnace and obtain more heat from the coal burned.

If the check draft is kept closed the heat passes out of furnace too rapidly, much being lost which otherwise would pass into hot air pipes.

To resume: Always leave one of the draft registers in ash pit door a very little open, also one or both of check drafts in smoke pipe open or partly so. We would also recommend regularity in filling the magazine with coal every morning and evening.

The furnace is easily controlled, is prompt and decisive in action, a powerful and steady heater, and when regulated as above directed, will throw out for hours a strong, even and continuous heat. As houses vary, and chimneys also, it may not be amiss to say that above are general directions, and that he who uses the furnace can exercise his judgment and vary his management as experience shall dictate.

Heating Capacity.

There can be no absolute rule given; that is, no man can say just how much space a furnace will heat. Some houses are so built that they heat naturally and easily with a furnace, others the reverse. If the house is moderately well built, furnace centrally located, hot air pipes and registers large, with good elevation, thus: a No. 36 will heat a house 25x35, two stories; a No. 40—30x40, two stories; a No. 46—35x50, two stories. A furnace set so there is little or no elevation to the hot air pipes, thus: —hot air pipes running horizontal, will seldom work satisfactorily.

If the doors through the house are left open at all times, all parts will be aired and rooms in which you have registers will be well heated. The difference in expense between heating in this way and only heating the rooms in which you have registers is not very much, and adds greatly to the comfort of the family. If you have an open fire in connection, it will improve the working of your furnace, as the open fire draws a large amount of cold air

out of your room or rooms near the floor, thus making place for your heated furnace air. Difficulty is sometimes experienced in heating small, close rooms. If your hot air pipes are of good size, and proper elevation from furnace to register, the difficulty may be overcome by providing means for the escape of cold air from the room by opening a door leading into another room or hall, or allowing it to escape at or near the floor into an open flue. If the flue is heated it will be still better.

Chimneys.

See to it that your smoke pipe is tightly fitted where it enters the chimney; also that no openings in the chimney are left uncovered in the rooms above; also that there are no obstructions left in the chimney, such as brick or mortar. Much of the comfort of the family depends upon the successful working of the furnace, and in order to work well it must have a clear, unobstructed draft. Before building fires it is well to examine your chimney from top to bottom and see that the way is clear. A little precaution will sometimes save great annoyance and trouble.

Cold Air Box.

It is only necessary to take advantage of the well known tendency of heated air to rise, and of cold air to fall, to fill our dwellings with moderately heated and absolutely pure air. In no way can this be done to better advantage than to place a *Radiant Home Furnace* in your cellar or basement, connect it by means of a cold air box with the air outside of your house, thus taking outside cold, pure air, allowing it to fall upon your furnace, where it will become moderately heated, and rise into your rooms fresh and pure.

The cold air box should be provided with a slide, so that in extreme windy or cold weather you can close and take air from your cellar. When this is the case you should open an outside window into your cellar or leave a door open from your cellar to the rooms above. The cold air box should be large, its capacity in cubic inches about two-thirds of the capacity of the

hot air pipes, the air should be allowed to fall into the cold air box in an easy and natural way, its mouth must be protected so as to prevent air from driving down with a rush. If so protected you will have but little occasion, even in windy or extreme cold weather, to use the cold air slide.

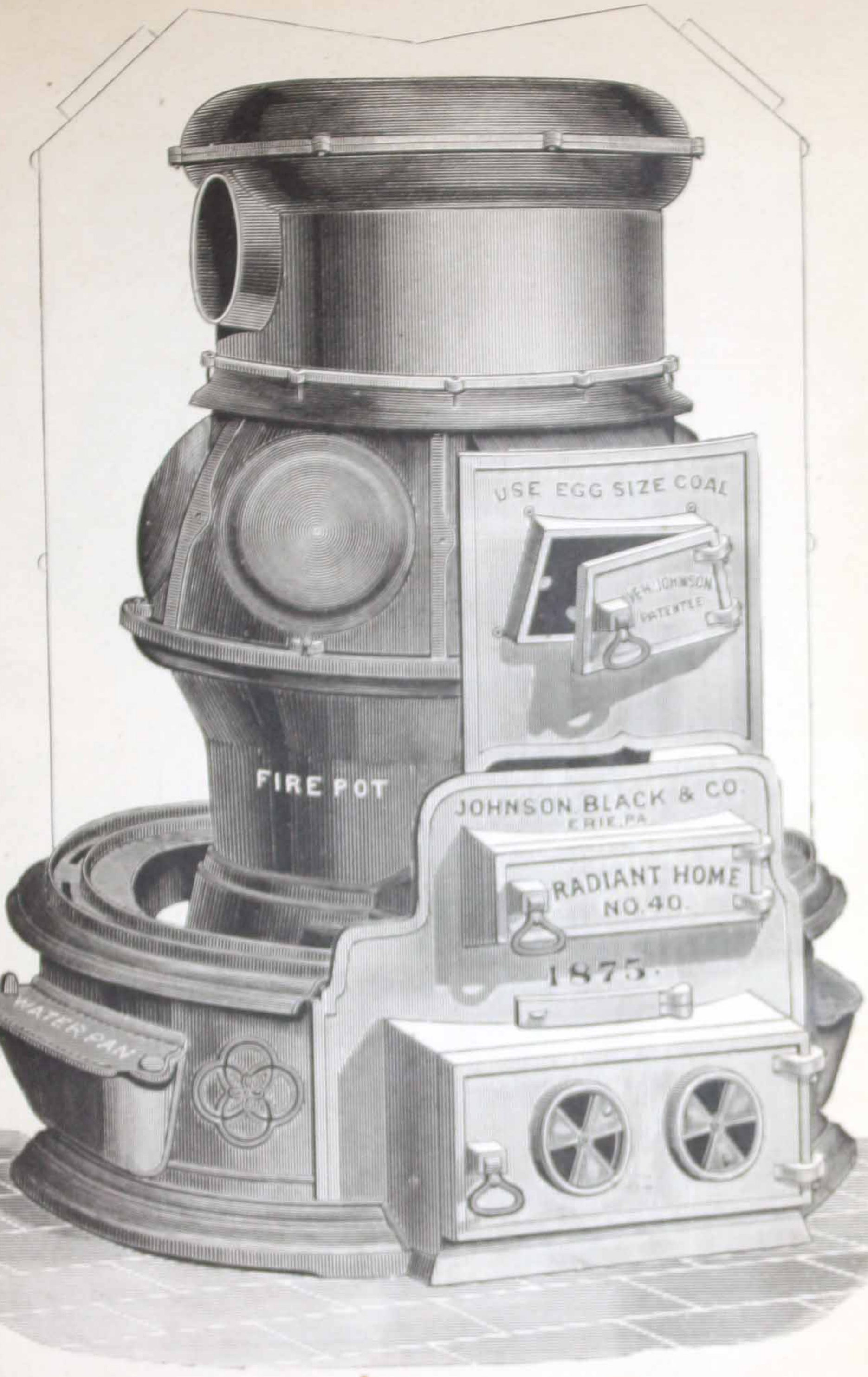
Evaporation of Water.

A great diversity of opinion exists as to the healthfulness or unhealthfulness of evaporating water from furnaces. Formerly it was the generally received opinion that it was necessary or at least more conducive to health to do so, but of late years many persons hold to the opinion that such is not the case; that a natural atmosphere is more healthful, that by evaporation of a large quantity of water in the house, the increased humidity tends to produce colds and aggravate some diseases. Again, when such is the practice, it is not unfrequently the case that the vapor pans or water tanks are neglected to be properly cleansed, and oftentimes neglected to be filled with water, and at such times the odor arising from the heated sediment deposited in water tanks is extremely offensive. We do not pretend to decide as to which is the better plan. Our furnaces are made with vapor pans which can be used or not, according to the ideas of persons using the same; but if used, care should be taken to have them frequently cleansed, and always kept full of clean, pure water.

Size of Grates.

No. 36—16 inches diameter.
No. 40—20 " "
No. 46—25 " "

The number of the furnace indicates in inches the diameter of casing.



PORTABLE SURFACE BURNER.

THREE SIZES.—Nos. 36, 40 and 46.

MADE WITH OR WITHOUT MICA. Surface Burners can be used for either Hard or Soft Coal.

BRICK SURFACE BURNER.

THREE SIZES.—Nos. 36, 40 and 46.

MADE WITH OR WITHOUT MICA. Surface Burners can be used for either Hard or Soft Coal.

[BLANK PAGE]

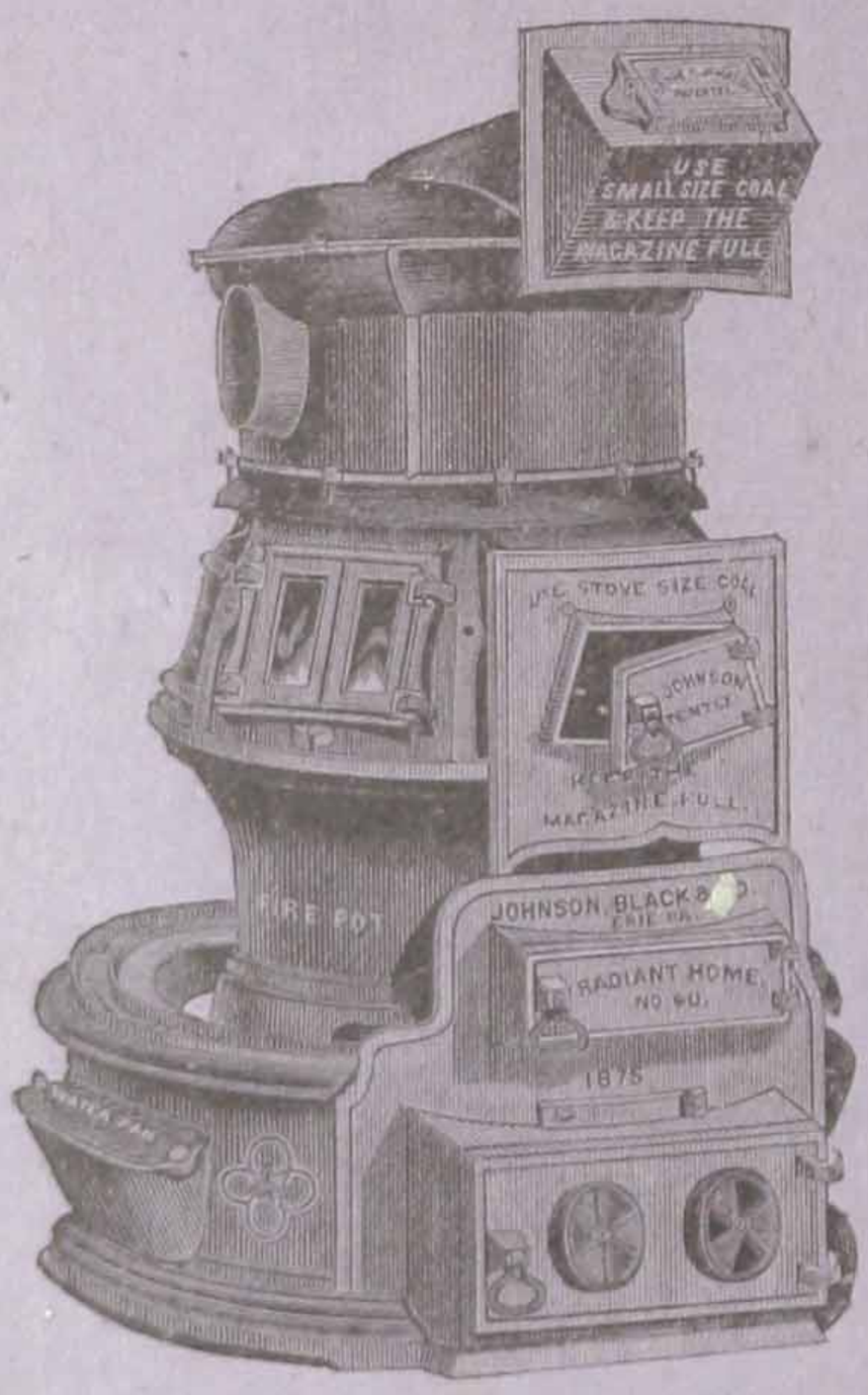
API INTERNATIONAL

CCA

"RADIANT HOME"

BASE BURNING

1876. 1876.



FURNACES.

SOLD BY